

FEBRUARY 1963 • 50¢

AMERICAN Cinematographer

*International Journal of Motion Picture
Photography and Production Techniques*



FILMING
SHELL'S WONDERFUL
WORLD OF GOLF

•

The Pros Show
The Students How

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MUTINY ON THE BOUNTY

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90 Minutes In Color

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INTERNATIONAL JOURNAL OF MOTION PICTURE PHOTOGRAPHY AND PRODUCTION TECHNIQUES

FEBRUARY, 1963

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ON THE COVER

MAKING A LOW-ANGLE SHOT for 'Shell's Wonderful World Of Golf,' top rated TV film show seen weekly on the NBC network. Behind the 35mm Arriflex camera focused on US golf pro Phil Rodgers is operator David Brenner. Kneeling behind camera is Tom Turville, ASC, Director of Photography of the show, whose story on filming the scenes in Brenner Color appears in this issue. Details in group are Dick Dufley (in white coat), Producer/Director of the show, and Harry Sherman, Assistant Director (Photo by Neil Pomeroy, Shell Oil Company)

ARTHUR E. GAVIN, Editor

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INDUSTRY NEWS

News briefs of industry activities, products and progress

Gene Levy Heads CECO

Expert H. Levy, last month, was named president of Camera Equipment Company, Inc., by the directors of CECO Industries, Inc., the parent organization.

Levy succeeded Frank C. Zucker, who retired to become president of Local 634, International Photographers of the Motion Picture Industry.

Associated with
Lancaster Equipment
Company since its
founding in 1946,
Levy was vice presi-
dent for sales and



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national director of advertising and promotion prior to assuming his new post.

Following acquisition of the company by CEO in 1961, Levy was elected to the board of directors. He is credited with designing and erect of new series of apartment now widely



ILLUSTRATION

Best Photographed Pictures

"The Longest Day," "The Marsha-
man Candidate," "The Music Man,"
"Hush," and "Requiem For A Heavy-
weight" were cited last month as the
five Best Photographed Pictures of
1962 by the nation's critics. Awards
followed the annual *Filmfare's* Famous
Fives poll of newspaper and maga-
zine critics and film reviewers and TV
music commentators conducted by *The*
Film Daily, motion picture industry
tradebook.

The directors of photography of the pictures cited were: "Longest Day," Jess Bourgeois; "Honor Prisoner," and "Walker, Texas," "Mercurian Candidate," Laurel Under, ASC; "Miss Man," Robert Burke, ASC; "Histeri," Russell Harlan, ASC; "Requiem For A Heavyweight," Arthur Dent.

Invitations to cast ballots in the

annual poll were mailed to over 2,000 professional reviewers, critics and commentators. Motion pictures considered were those placed in general release between January 1, and December 31, 1962.

ASC R&E Committee Seeks TV Format Standards

The possibility of establishing an industry-wide standard for the frame area of all motion picture prints produced for television was explored last month at a joint meeting between members of the Research and Educational Committee of the American Society of Cinematographers and members of the SMPTE allied with feature film production, TV network operators, and film laboratories.

While the 133-oz 1 frame format of most old films fit the average home TV receiver tube, later wide-screen theatrical films made available for television do not, according to Walter Beyer of Universal City Studios, who is also Chairman of the ASC committee which sponsored the discussion.

Standardization of the frame format of prints made for TV transmission, according to Beyer, will eliminate the present objectionable wide framebars at each print and at the same time preserve the technical and aesthetic qualities conceived in the original photographs.

Taking part in the discussion were Edward Anzures and Ken Edwards of NBC, Elliott Blum of CBS, Glen Altman of ABC, Robert Riley and *Wonderwall* Poehl of Touchstone, Allen Hazen and Vic Prosk of Panthe Laboratories, Fred Soske and Dan Kishlitz of General Film Laboratories, Vaughn Shaner and Robert Hoffert of Eastman Kodak Company, also Ed Reichardt, Consolidated Film Labs, Williams Wale, Universal City Studios, Ray Johnson, MGM, Weston Gate, ASC, and Hal Mohr, ASC, co-chairman of the Society's RFE committee.

Sid Solow Meets ASC Members at Consolidated

Solney Selow, head of Consolidated Film Laboratories' Hollywood plant, hosted members of the American Society of Cinematographers in lieu of

Continued on Page 37

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INDUSTRY NEWS

Continued from Page 48

the Society's regular monthly meeting.

Following dinner served on a second stage adjoining the company's plant, Solus discussed some of the recent technical developments and improvements achieved in film laboratory procedures by his company engineers. These included new AAB roll printing procedures for color prints for television, improved curing method for printer light and filter changes in film printing, and the latest spray development techniques. A highlight was screened demonstration of motion pictures of action originally recorded by multiple closed circuit TV cameras and exhibiting in a high-quality motion picture film print.

ASC Mourns Death of Frank Planer

FRANK ("Frank") Planer, a member of The American Society of Cinematographers since

1939, died January 10 at his home in Beverly Hills following protracted illness.



PLANER

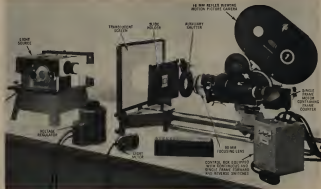
Coming to this country in 1935 from his native Austria, Planer photographed feature films for various major studios in Hollywood. He began

as a second cameraman for Edson in Paris before World War I, moved to UFA studios in Germany where he worked until 1920. He had photographed motion pictures in almost every country of the world.

Surviving are his widow Uwea and daughter Susan.

TRADE NOTES—Glenn E. Matthews, technical editor at Kodak Research Laboratories in Rochester, resigned January 1st after more than 41 years of service with Kodak. . . . Belvidere Cine Corp., Chicago has changed its corporate name to *Belvidere's, Inc.* . . . Hudson Graham Jr., director of sales for Dupont photo products since 1958, was appointed Assistant General Mgr. of company's Photo Products Dept. 1st of the year. George H. Loring has succeeded John M. Clark as general manager of the department. Kodak has elevated Frederic S. Roth to assistant Vice-President. . . . Camera Mart, Inc., New York, announces its "Irene and Sam Browning Memorial Award" for promising University film production students.

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Key projects at Western Electric's Princeton Research Center are transposed from color slides to motion pictures, through the use of this bench-top "studio," designed by John Carnevale, head of the Center's photographer team. The slides are filmed with an Arriflex 16, driven by an animation motor. Various optical effects are achieved with standard lenses and extension tubes. Creative use of the Arriflex' functional advantages produces highly profes-

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WHAT'S NEW IN EQUIPMENT, ACCESSORIES, ETC.

Continued from Page 70



MITCHELL TRIPLEX TITHEAD—A group of three cones on cone springs, each accommodating a different weight and coupled with an almost instantaneous method of interchanging is salient feature of new Mitchell Triplex Tithead, which will accommodate any Mitchell carter running from the 10-ton Professional to the 800-ton Variable top plate adjustment permits instant correction of radius of gravity. Sealed in ball bearings provides smooth ride in passing action, while large hook levers provide convenient hooking action. Mitchell Carter Corporation, 666 West Haverly, Lincoln, Calif.



LUMINANCE ANALYZER—This relatively new instrument is designed to solve problems of lighting control faced in live TV production and in the production of films for television. Designed to measure scene luminance in ratios, it enables the cinematographer to establish white reference quickly and correctly and relate flash tones and shadow areas as well as all other scene luminance directly to this reference.

From the known position without entering the scene, a cinematographer using the instrument aims it at the white reference area, makes one adjustment and surveys the rest of the scene. The instrument then automatically indicates scene luminance ratios, computes how diaphragm settings, and supplies absolute luminance information. With its angle of view of 4 degrees, this hand-held photovisualizer spectrometer makes possible the use of the instrument in lighting and in color control of the scene. The optical system is similar to that of a camera. The analyzer contains an objective lens which forms an image like that of a camera, in-

Continued on Page 88

Troubled by out-of-focus pictures?

Troubled by emulsion

pile-up in your camera gate?

Troubled by distracting camera

noise when shooting subjects who should not be distracted from what they are doing?

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BEHIND THE CAMERAS

Continued from Page 78

GOLDWYN STUDIOS

NORMAN DESMAY, ASC, "The New Lavette Young Show"

INDEPENDENT

JACK SPICHT, "Here's Harlow" (Famous Pictures; Eastman color, shooting in Technicolor) with Mary Butler, Ralph White, producer-director.

ALAN STEINBERG, ASC, "Here's Las Vegas" (Producers Equity Corp.; UA release, Technicolor) with personnel of Las Vegas shows. Mitchell Leisen, director.

BENJAMIN TRACY, ASC, "Tomorrow You Die" (Cine F. Robertson Prod.) with Peter Breck and Kent Taylor. Herbert L. Ross, director.

MURRAY CLOSE, "The Lucifer Rose" (Le Corp. Prod.) with Wynne Olf and Helen Carnegie. John Henderson, producer-director.

JOSEPH BROWN, ASC, "International Showtime"

SEA NICKER, "Dorothy Kilgallen Show" (New York).

WILLIAM CULBERT, "McClintock" (Rialto Prod., UA release, P-Vision & Technicolor) with John Wayne and Margaret O'Brien. Andrew V. McLaglen, director.

WILLIAM MELAND, ASC, "The Greatest Story Ever Told" (Geo. Stevens Prod., UA release, P-Vision & CinemaScope Technicolor) with Max Van Sledright and Charlton Heston. George Stevens, producer-director.

JOSEPH MACDONALD, ASC, "Mardi" (Argos Films-Alpha, Paramount & DeLuxe Films, Buena, UA release; Eastman color; shooting in Technicolor) with Delphine Seyrig and Jean-Pierre Aumont. Allen Reisner, director.

JOSEPH LA SCELLE, ASC, "Buenos Aires" (C.F. Films & Color, MCA-Edward R. Roybal Productions) with Jack Lemmon and Shirley MaLaure. Billy Wilder, director.

GERARD HALL, "Sassy Sash" (Daguer).

FRANK LAYMON, ASC, "The Pink Panther" (Edwards-March Prod.; UA release; Super Technicolor 70 & Techniscope; shooting in Rome) with David Niven and Peter Sellers. Blake Edwards, director.

JOE MACDONALD, ASC, "The Menard Build-up" (Mensch Prod., UA release, P-Vision & DeLuxe color) shooting in Mexico with Yul Brynner and George Chakiris. J. Lee Thompson, director.

ROBERT KERRICK, "The Fall of the Roman Empire" (Channel-Broadcast Prod.; Ultra P-Vision & Techniscope; shooting in Spain) with Sophia Loren and Stephen Boyd. Anthony Mann, director.

KEYWEST STUDIOS

FRED WERT, ASC, (Family Films) Series of religious pictures.

LA BREA STUDIOS

ROBERT HAZEL, "Perry Mason"

M-G-M STUDIOS

WILLIAM SUTHER, ASC, "Cattle King" (Hollywood Prod. Inc.; Eastman Color) with Robert Taylor and Jean Carroll. Tay Garnett, director.

MYRON KRAMER, ASC, "Moon Walk" (Embury Prod.; P-Vision & Techniscope) with Shirley Jones and Gay Young. George Seidman, director.

HARRISON SMITH, ASC, "Dr. Kildare"

DALE BEVERMAN, ASC, "The Eleventh Hour"

Continued on Page 121



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Q & A

Technical Questions and Answers

QUESTIONS INVITED

Need professional advice on a picture-making problem, about equipment, film or cinematography? Reader's questions are invited and will be answered by mail when accompanied by a stamped, addressed envelope for reply. Questions and answers considered of general interest to other readers will be published.

Address your questions to the "Questions & Answer Editor," American Cinematographer, P.O. Box 2230, Hollywood 28, Calif.

Q.—My problem concerns making a dolly shot of a stage display with a 16mm camera moving at an angle of 90° to subject. Is there a published table that can guide me in computing the correct rate of dolly travel so "slap pang" or strobe effects can be avoided?

It could the *Panning Speed Tables* in Section 4 of the *American Cinematographer Manual* apply to this type dolly shot where the degree of arc is compared at the center of travel?

Do the *16mm Panning Tables* in the *Manual* apply also to 16mm photography?—R. G. T. Illinois, New York

A.—To our knowledge there is no table presently available that can guide you in avoiding the so-called "slap pang" and strobe effects that often result in a dolly shot such as you propose to make.

This is because the problem as solved is not only highly mathematical but physiological as well. By that we mean that the size, shape, and edge characteristics of your subject matter must be considered as well as the photographic lighting, and also the screen brightness conditions that will prevail in projection of such a scene.

The panning speed recommendations published in the *Manual* are carefully calculated tables that have been empirically double checked in exhaustive tests. It was found, for instance, that for photography at 24 fps, the theoretically established value for the panning speed in degrees per second could be increased by a factor of 2, following an evaluation of test shots on the screen. The values, shown in the tables in the *Manual* are the practical applicable values. It is suggested, therefore, that you first shoot a series of tests of your proposed dolly shot and study them in projection to determine the most acceptable travel speed for your camera dolly.

Question 2 is answered at part above; the panning speed recommendations in the *Manual* should apply to your situation if the degree of arc is computed at the center of travel.

The answer to your last question is "yes"—the 16mm panning tables in Section 4 of the *Manual* apply also to 16mm photography.

Physiological studies have shown that the troublesome "skipping" ef-

fect in some dolly shots can be minimized by giving due consideration to the focal length of the lens used, the degree of shutter opening, the fps of the camera—plus the brightness level of projection regardless of image size.

Q.—Can the filter slot in the Bolex Supreme 16mm camera be used in making split frame shots?—J. K. Dorset, N. J.

A.—In order to obtain acceptable split-frame or masking effects with any camera, it is necessary that the mask be positioned at a point far enough ahead of the lens or directly in front of the film plane (in back of the lens in the camera) to insure the necessary sharp line of demarcation between the two split frame areas.

The filter slot in Bolex cameras is situated solely for use of filters and is purposely located a good distance forward of the film.

To produce true postcard-like mask or split-frame shots with your Bolex Supreme, we recommend use of the Bolex Matte Box which is designed especially for all Bolex cameras.

Q.—Is there a way to modify a 16mm Eyemo camera to provide a reflex device that will permit viewing the scene or subject continuously while being photographed?—S. V. New York, N. Y.

A.—Camera Equipment Company, New York, offers a reflex modifica-

Continued on Page 82

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QUESTIONS & ANSWERS

Continued from Page 46

tion for the 35mm EBM Eyma camera. It's rather expensive! \$1,200. We refer you to this company's advertisement on page 14 of our January, 1964, issue, in which this modification is illustrated and described.

We have no knowledge of any do-it-yourself procedure by which the camera owner or service lab a qualified camera technician could modify the Eyma camera for this purpose.

Q.—What is the Panacolor Process? I have heard that it involves only black-and-white film stock in the production of color prints?—J. D. McN., Sydney, Australia.

A.—The Panacolor Process is a film printing method which, in a fully automatic and continuous 3-stage printing and chemical process, produces color movie release prints ready for exhibition. It is the only process which reproduces color images on black-and-white positive film stock. Color fidelity is controlled as true film is being printed since the process has the unique feature of permitting easy and

rapid adjustments of color values and scene-to-scene light densities.

Q.—Why do some films show more grain when projected, than others? If not, exactly, is grain and its cause?—J. H. H., Portland, Ore.

A.—The grain in any film is there all along, but becomes more apparent with underexposure. The impression of grain in an underexposed color scene is greater due to the lack of dye. The extent of visible grain in any scene is determined by the scene content. Also, some types of scenes show grain worse than others.

Q.—I am advised that the Sylvania San Gals, Professional model, produces about 5000 watts of illumination while consuming only 10 amps of current. Is it possible to use six or more San Gals to light a set in conjunction with a power converter such as the Colobron? Also, if the converter can be used on location interiors as a means of avoiding overloading the house circuits (and using other lighting equipment) can the intensity of the San Gals be lowered?—H. L. F., Berkeley, Calif.

A.—The Professional San Gals draws 1000 watts of power with a current draw of 8.5 amperes yet produces efficient photographic illumination equivalent to 5000 watts. This is due to the high efficiency of the quartz-halogen lamp unit and of the reflector-lamp combination.

The Colobron Converter is rated at 20 amps. This means that two professional San Gals may be used on our converter at an input voltage of 120 volts.

Power of the San Gals may be limited only to the extent that 20 amps current drain is not exceeded when used with a converter. Beyond this point, the circuit breaker of the converter will open.

Q.—Using 16mm Commercial Ektachrome film with a No. 85 filter for daylight correction, I am interested in obtaining day-for-night effects. Would the bluish cast resulting from using this film in daylight without the 85 filter be sufficient to gain this effect when the film is properly underexposed? I am also using Ektachrome High Speed (Ekr 7257 and 7258) on this filming assignment with which I also wish to achieve day-for-night.

Continued on Page 132

ACMADE Foot-Operated Splicer with Tongsten Tipped Blades



Continental
16mm-35mm
Model
\$1495

This splicer is constructed, as is usual with ACMADE products, of the finest materials and workmanship and contains all of the basic quality and the top notch and control units are designed to prevent vibration after machine. The mounting is carried out to handle 2000' of film. The cutting blades which close to a foot and a half, are made of the finest Tungsten Carbide. The cutting blades are made from stainless steel with Tungsten Carbide inserts, and afterwards ground and polished to a level of 0.0001 inch. The cutting edges are 1.1". The Tungsten Carbide inserts will have exclusive life and will not require sharpening as with other types. A heater unit is included in the foot of the machine. The top light is a 100 watt 100 volt unit. The top light is of the same type and also an improved light on the machine will be given with correct setting and knob. A complete manual is included and also a complete book setting up and running the machine. The whole machine is in the best in first quality steel and all metal parts, other than the cutting blades are first class chrome.

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The cutting unit shown in operation is shown in the photo. The cutting unit is shown in the photo. The cutting unit is shown in the photo.

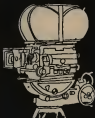


The splicing unit is shown in the photo. The splicing unit is shown in the photo. The splicing unit is shown in the photo.

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COLOR VERSUS B&W WORKPRINTS

The pros and cons on an oft debated question.

Should you order a color workprint? Lots of people don't. The reasons usually given are the economy of black-and-white reversal and, some say, that they prefer to save the impact of color for the acceptance screening of the answer print. Probably nobody will argue the economy angle. Black and white reversal is about four cents a foot cheaper than color. That's not much of a factor in the overall budget of a show, but if the modest difference does mean something to your own bank, you may very well feel obliged to use the cheaper method and take a chance on the consequences. But think a moment before deciding for any reason. It's generally true that the overall quality of color in the edited workprint won't be perfect because of the lack of some to some exposure correction.

Even if you ordered timed prints, it won't represent the "correct" timing because timing bear in mind the adjacent scenes in determining the amount of correction. But your show will be in good color and showing color to the client at the interlock may very well bring out a decision or color problem that is more easily and less expensively corrected before the final prints are made. Imagine the embarrassment of learning at the final delivery, that the beautiful action cut you made was great except for the unexplained transition from a gray, faded to a yellow one, causing the client to suggest that you save your practical jokes for less important assignments. Don't forget too, that the black and white reversal stock available is color blind and will not give a monochromatic rendering of color tones. Be prepared for reds, deep yellows and skin tones going dark or black on black and white reversal workprints.

Color workprints are good insurance against editing or color mistakes. Let the cameraman evaluate the probability of his exposures give a valid print, not just of the color original and help the laboratory direct its attention to wrong dyes and requirements. Actually a too light workprint is made using the exposure setting which would be used if the original were perfectly exposed and of a normal subject. Contrary to many beliefs, the quality of the workprint is as rapidly maintained as release prints. "Light tone" prints won't vary and to possess the same workprints made from the same original over considerable spans of time and materials there will be no noticeable

print difference. If you experience "too light" or "too dark" workprints, the chances are you'd better give attention to camera exposures.

Kodachrome grain stock, of course, has been standard for most films color answer prints and workprints for many years. It's a high quality reversal stock designed specifically for duplication from reversal color originals. Recently, a similar, but more expensive print stock was introduced to allow Ektachrome processes to offer duplicate prints. Apart from the considerable cost differential, the Kodachrome prints are generally preferred because they are on the same stock the answer print will be, allowing a better evaluation of the original. Also Kodachrome seems to be less sensitive to scratches during the processing run through viewer and projector.

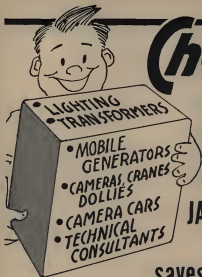
Perhaps the final argument on what workprints to use is on the advisability of "inked" edge numbers over "printed-through" edge numbers, the latter are made by photographically printing the edge numbers provided outside the sprocket area during film manufacture. (Ask any "inspected" film editor and he'll tell you how you may go blind trying to decipher the inked photographic numbers.) Recently, a show with some 500 scenes having the printed-through numbers required four times as long to match as would have been required with inked edge number workprints. Apart from the editor's copyright and the cost of labor, there's the loss of time involved in delivery.

Color workprints are an integral part of the color film system, offer a check on color quality and accuracy, and therefore ought to be used whenever the production budget will allow it.

Unedited and reprinted from *The Aperture* workshop publication for 1966. All art shows published monthly by Calvin Tucker Inc., Kansas City, Missouri—ED



Art: Tom Scott, © 1966



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WHAT'S NEW

Continued from Page 74

the image plane there is a small aperture 30/100ths of an inch in diameter, which allows only the light from the center of the optical field to pass through to the photo cathode of the P/M tube.

The Luminance Analyzer (Model A 5001) measures 7 1/2" long, 2 1/2" wide and 6" high, and weighs 3 pounds. List price, less hand grip, is \$475.00. Gamma Scientific, Inc., 5051 Mission Gorge Road, San Diego 20, Calif.

New Safety Film Leader

A unique safety film leader that requires no scraping and is available in a wide variety of colors, is announced by Stages, Inc., of Kearny, N. J. This new non-flammable erasable film leader can be used on all standard splicing equipment. Made expressly for splicing, it has no emulsion to scrape off, so is necessary with conventional film leaders.

The opportunity to color-code film reels according to subject, film base, or any other desired category is another advantage Stages offers. Details and prices may be obtained from the main sales office at 251 West 42nd Street, New York 36, New York.

New Eclair 16mm Camera

Camera Service Center, Inc., 833 West 52nd St., New York, N.Y., has been named distributor of the new Eclair 16mm reflex camera. Among the camera's salient features are a built-in view signal generator, automatic start switch system for both picture and sound, instant interchangeability of motors and magazines, and rapid self-threading of film.

Perfect frame registration is assured through pilot pins which enter film perforations from emulsion side. A wide range of accessories and lenses for the camera are also available.

Rollei Camera Conversion

Lloyd's Camera Exchange, 1612 Commercial Blvd., Hollywood 28, Calif., announces a custom 400-ft. conversion with motor drive for 16mm Rollei cameras. Conversion includes a 400-ft. Mitchell magazine mounted on top of camera plus a rugged, dependable electric motor fitted on side of camera. Motor supplied may be either battery-powered type or a 110 V synchronous motor. Complete conversion kit, as supplied for camera owner installation is \$499.50. For installation by Lloyd's, there is an additional charge of \$39.00.



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Photographing "Mutiny On The Bounty"

Imaginative cinematography is this picture's greatest asset.

By DARRIN SCOT

"**M**UTINY ON THE BOUNTY," be set, as it was, with endless cast and production difficulties, also presented an incredible range of photographic problems—none of which, however, are apparent in the final, visually beautiful result.

For Director of Photography Robert Surtees, ASC, who believed there never could be another trying assignment like "King Sol-

omon's Mines," which he photographed in the jungle country of Africa, or "Ben Hur," which required two years' of shooting in Rome, "Bounty" and its photographic problems and challenges must have topped them both.

From the very beginning it was M-G-M's plan to shoot most of "Bounty" in Tahiti and the neighboring islands of Bora Bora and Moorea, the South Pacific area

where the actual historic mutiny of H.M.S. Bounty took place.

When first he received word of the "Bounty" assignment, Surtees was hard at work on location shooting M-G-M's "Cimarron." He was relieved of that assignment in order to make a location scouting trip to Tahiti with Producer Aaron Rosenberg, Director Sir Carol Reed (who was later replaced by Lewis Milestone), and the film's star, Marlon Brando. A script writer also went along with them in the event any interesting details were encountered that could logically be worked into the script. It was in this way that the pictorially striking stone-fishing sequence found its way into the picture. While in Tahiti, producer Rosenberg heard about this colorful technique of fishing which is performed only on the island of Bora Bora, 95 miles away. The location-scouting group flew to the island, observed the fascinating ceremony, and decided to have it written into the script. It proved to be one of the most visually dramatic highlights of the picture.

Meanwhile the practical sailing model of the "Bounty," seen at sea under full sail in the film, was under construction. It was in effect to be a floating motion picture studio, designed and built to provide the most complete and spectacular camera coverage of the story action. For the first time in the history of the cinema industry



SHOOTING ABOARD THE BOUNTY—Director of Photography Robert Surtees, ASC (behind camera), with Producer Aaron Rosenberg and Director Lewis Milestone (top up a shot) for a stone-fishing sequence in "Mutiny on the Bounty" aboard the H.M.S. Bounty moving off shore near Tahiti.



ONE OF THE pictorial highlights in "Mutiny on the Bounty" is panoramic scene above of a Tahitian fishing operation in which hundreds of native girls crouching in the surf act as a human net to corral the herds of fish being driven shoreward by men at oars. In photo below, right, Director of Photography Robert Surtees and camera crew prepare to shoot climax of a segment of the action being rehearsed by assistant director before them. Surtees is 2nd from right, standing on camera platform.

a ship was constructed from the keel up especially for photography. The ship, adapted in design from the actual plans of Captain Bligh's "Bounty," was constructed at the historic Smith & Rhuland shipyards at Lunenburg, Nova Scotia.

Above deck the motion picture "Bounty" is a faithful copy of the original, from rope davits to the 10,000 square feet of canvas on the square-rigged masts. However, whereas Bligh's vessel was 85 feet long and carried a crew of 62, the new "Bounty" was extended to 118 feet to provide room for Panavision cameras, lights and other cinematographic equipment, as well as dressing rooms and equipment storage below decks.

When the vessel was still in the blueprint stage conferences had been held to decide where cameras could best be placed and to make provision for such installations. With this in mind, permanent fittings were built into the ship to readily accommodate platforms and tubular steel parallels in the most strategic locations. Installations for parallels were also provided all along the deck and similar platforms could be installed far down on the sides of the ship, high up in the rigging, on the masts and bowsprit or in a special rig off the stern from which the complete deck of the ship could be photographed while under full sail.

Because of this foresight in design, Surtees was able to achieve the most sweeping coverage of a sailing vessel ever recorded on film. While he included



some breath-taking shots made from high up in the crow's nest, Surtees believes that low camera angles create the most dramatic effects for action aboard a moving sailing vessel, which is why he often mounted the camera on a platform attached to the side of the ship, almost at water level. When the ship pitched and rolled the tripod and the camera operator were sometimes partly under water.

With a crew of 25 under the command of Captain Ellsworth Coggins, a retired commander of the Royal Canadian Navy, the "Bounty" made the 7,327 mile voyage from Lunenburg to Tahiti. Once the ship arrived, 150 days were spent aboard it filming at sea.

But bad luck dogged most of the shooting. The

Continued on Page 114

Make Way For Youth

By MERVYN LEROY

APPROX as a companion article to Cliff Harrington's, which begins on this page, is the following short article reproduced with permission from *The Journal of the Screen Producers Guild* for September, 1962. Author is Mervyn Leroy, one of the youngest "veterans" in the Hollywood film industry who has directed some of Hollywood's finest films, the latest of which is "Gypsy" for Warner Brothers.—ED.

HOLLYWOOD AS A FILMMAKING entity has passed the 50 mark, too young to die but old enough to be thinking about the future.

The upstarts who congeal the greatest entertainment apparatus in history to the scrap heap are as worn as are some of their pictures, but they're not all wrong. Our town has begun to creak a little at the joints and there is no doubt it needs a little oil here and there. For this lubricity our industry, like any major industry, must call upon the young. But where are they? Once they hang about our gates, clamoring for a chance to be heard, to show their wares, to exhibit the artistry and the talent they felt surging within themselves. "Let us in," they cried. "Let us in and we'll show you."

I haven't heard the hammerings on the gates for a long time now and I doubt many others have, because the cries are becoming feeble. Perhaps they're hammering on the gates of television or the stage now, but I'm afraid they've given us up. It's a shame, too, because as long as the young hopefuls had hope, we had a chance. Without them, we must surely die a little, and perhaps a lot, as all the greatest talents of Hollywood succumb to the passing of the years.

If Detroit operated the way we do, we'd still be cranking our cars by hand, putting up the side curtains each winter and riding on hard rubber tires. But Detroit believes in young blood. Each year the big auto makers scour the country's colleges for promising talent. Then these youngsters are given every opportunity to prove themselves. Practically every major industry in America does the same thing. But do we scour the colleges for writing talent or the little theatres for potential stars or great directors? Not to any extent. Mostly we just scout each other.

In the old days you could make a star by taking an extra off his horse. You could make a director by crooking a finger at some young fellow who looked as though he would know stage left from stage right. You could even make a producer out of a guy who thought a good property was a piece of real estate. Needless to say, but I'll say it, those days are far behind us.

We are in an era of fierce competition with television, which has on its side the natural human reluctance to overcome inertia and thus prospers on people who find it easiest not to get up from their chairs; with foreign movie-makers who have rushed in to fill a vacuum which we ourselves created and who find it easy to exploit

Continued on Page 112

THEY STAR of the short 35mm sound film, "Off the Highway," was Richard Widmark and the director, Fred Zinnemann. The key technicians also were Hollywood professionals. All the rest were young men getting their first professional motion picture work under men long experienced in the industry.

This non-profit experiment was conceived to help provide young people aiming for a professional career in motion pictures with the important on-the-job training that they need.

The eleven young men, all members of the University of Southern California's Cinema Department, were faced with the grim fact that the university's cinema class could only provide basic training, with little opportunity for practice by which to develop skill. A number of prominent men in the Hollywood studios were sympathetic with their plight—among them, veteran screen director Fred Zinnemann who agreed to lend a hand by directing a film for them. Key technicians, with their union's approval, agreed to contribute their services without pay. When the camera was ready to roll on the first scene, an impressive production company was assembled to work side-by-side with the cinema students. There was Emmet Emerson of the Mirisch Company, and Joe Popkin of 20th Century-Fox who acted as production managers. Joe Edmondson, of Goldwyn Studios, was sound man; Suss Bedig of Universal-International Studios acted as special effects technician; Jack Holmes of 20th Century-Fox was film editor, and Terry Sanders supervising cameraman.

[USC faculty participants were: Arthur Knight, *Saturday Review* film critic, Assistant Dean Maynard Smith, and Morgan Cox. Student participants were: Vern Bert, Gary Kutz, Lear Levin, Pat McGahan, Len Miller, Stuart Murphy, Spencer Nelson, Mike Neyman, Efrain Ramirez, John Rose and Joe Zuccherro.]

The students had the very best



DEBBY SANDERS operates the Mitchell 35 camera photographing a dramatic scene for "Off The Highway," a non-profit production unit formed to give on-the-job training to college cinema students under guidance of Hollywood professionals. Others from left are student

Ernest Reinsel, actor Richard Widmark, student Billy Hymen, special effects technician Jess Beale, director Fred Zinnemann, and students Leea Garcia and Leah Miller. (Photograph by Helen Holjakovich)

The Pros Show The Students How

College cinema students working with Hollywood professionals produce "Off The Highway" in 35mm and sound as a non-profit job-training project.

By CLIFFORD V. HARRINGTON

of production equipment and facilities to work with. They provided half of the raw film stock themselves, and Eastman Kodak supplied the rest. Sound facilities were donated by Todd-AO. Camera equipment was loaned by Mark Armistead, Inc. Grip equipment came from the Masterlite Co. Editing facilities were provided by the Goldwyn Studios, and laboratory work was donated by DeLuxe Lab of 20th Century-Fox. An arti-

ficial boulder, an important prop in the picture, was borrowed from Columbia Studios.

With this top flight backing a tremendous responsibility fell upon the students. They had to show the pros that they could meet the challenge.

Writer Ira Wolfert had donated his short story "Off the Highway" for the production. It is a story of a traveling salesman surprised and attacked on the highway by a lunatic.

The role of the salesman was played by Widmark and the lunatic by Whit Bissell, both well-known Hollywood screen actors.

Prior to production, director Zinnemann asked each of the students to prepare shooting scripts. These were finally resolved into one. Then the students were sent out to scout locations for the picture. Zinnemann suggested that the story locale be set in the desert to reduce the story's elements to their

Continued on Page 109





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DOUG SANDERS, U.S. Pro, tees off on Sweden's Holmen golf course while action is recorded by camera on other-fused cherry picker in background.



TOM TUTWILER reaches for his exposure meter (a 1946 G.E. proprietary) to calculate exposures for the five cameras marking an Holmen golf course.



AFTER THE TEE shot, cameras are moved down the driveway to next set-up. For this work, mechanical vehicles were used at all times.

Filmways' Hollywood camera crew visited eleven countries to photograph with five cameras and 35mm color film some of the most dramatic golf plays ever seen on television.

TOM TUTWILER, ASC, who directed photography of "Shell's Wonderful World of Golf," follows action as a designer behind clouds during shooting of match played on Jamaica's Tynall course.



FILMING 'SHELL'S

ONE OF THE UNIQUE things about "Shell's Wonderful World of Golf," currently being televised in color each Sunday on the NBC network, is that it is probably the only TV film series photographed entirely with zoom lenses.

The series, which last year acquired a Neilson Rating of 15.5—considered exceptional for a golf show—is a motion picture record in color of 22 top professional golfers of the world playing eleven regulation medal play 18-hole tournaments in the U.S. and ten foreign countries. It was produced by Filmways, Inc., for the Shell Oil Company, with Dick Darley as Producer-Director.

The matches were photographed, as playing progressed, with five cameras strategically located and covering the action from various angles in a range of formats from wide-angle to long shot. None of the playing action was staged at any time. If a player flubbed a shot, which was not infrequent, there was never a retake of the play. The contestants did not replay such shots and if we missed any of them with the cameras it was just too bad, too. (The names of the golfers, courses on which they competed, and broadcast date of each show in the series appear at the conclusion of this article.)

The lenses and all the camera equipment we used in filming the series of shows in eleven different countries of the world were supplied by the rental department of Camera Equipment Company, Inc., New York, N. Y. There were three Mitchell NC cameras, one Mitchell high-speed camera, and two Arriflex 35's. Because sync sound was to be recorded as we photographed, we brought along one of the lightest of portable quarter-inch tape recorders presently available—a Perfector, supplied by Ryder Sound Services, Hollywood.



TUTWILER, in right background, confers with others on production staff, while camera on boom of cherry-picker in background is slotted for next shot



CAMOUFLAGED cherry-picker is seen here in one of its many uses—providing high vantage point for cameras covering action on Tylerside course



WITH EYES DIVED to their view, two cameramen follow the action played in the 18th in Dublin, Ireland

WONDERFUL WORLD OF GOLF

My camera crew, organized in Hollywood, consisted of two operators and two assistant cameramen, augmented by a production manager and a sound man. This crew later was enlarged in London to include additional technicians with whom I had worked the year before when filming a segment of the series there, and three more very good men joined us in Manila. All of these men remained with us until shooting of the series was concluded.

Through a fortunate arrangement, shipment of our equipment was scheduled to arrive simultaneously with us at each of our eleven destinations. We always traveled by air and so did our equipment. My crew and I left New York May 17, 1962, along with eight boxes of cameras and equipment destined for Copenhagen, Denmark. From there, we proceeded to Halmstad, Sweden where we were to shoot the first match. Following this, the second match was shot in Hague, Holland; the third in Dublin, Ireland; the 4th in Gleneagles, Scotland; 5th in Quebec, Canada; and the 6th at the Tryall course, Montego Bay, Jamaica.

There followed a two-week hiatus for the purpose of reviewing all the film shot up to that time and screening all the rough-cut footage that was ready. We then proceeded to the Philippines where we resumed shooting the series, with Dave Flanagan playing

Continued on Next Page

By TOM TUTWILER, ASC

Photos by Hal Power, Shell Oil Company



JACK NICKLAUS, 1962 U.S. Open Champion, shows camera for put made on Pebble Beach course in competition with Sam Snead in background. Tom Tutwiler wants with camera recording the action in color for the Shell Oil Co. TV series.



LOOKING DOWN on the 7th green at Pebble Beach (Calif.) golf course where one of the eleven competitions were played and filmed for "Shelly Wonderful World of Golf" TV film series. Folio, left center, is camouflage concealing camera mounted on platform atop jeep.

Celestino Tugot on the Wack-Wack course in Manila. From there we flew to Singapore, then to Wellington, New Zealand; Pebble Beach, California, and for the grand finale—a round trip that topped them all—from Pebble Beach to Santiago, Chile, where we shot the last show in the series. In all we traveled some 50,000 miles by air, and ran up a tab of \$30,000 just for air transportation of our equipment.

Shooting Procedure

The entire series was photographed with the new Eastman Color Negative, Type 5251. I was one of the fortunate "firsts" to have access to this improved color negative. Kodak, in London, was distributing the film long before it became commercially avail-



DOWN TOWNSHIP superiors setting up high speed camera for low angle shots of golfing action in their make-up use of the green at Jamaica's beautiful Tropic Golf Course.

able in the U.S. Exclusive of the commercials, which I did not photograph (but which were photographed in each country where the golf matches were played) our five cameras exposed 450,000 feet of this film for the series. We recorded sync sound continuously as we shot every stroke at every course—very little of which had to be re-recorded later.

The photography of each match began at the No. 1 tee. Here we had one camera set up behind the player, another in a forward position for a three-quarter shot, with a third camera near the tee picking up spectator reactions—closeups of people "Aaahing" and "Ooohing" in reaction to the players' good or bad swings, lie of the ball, etc. The fourth camera was set up in elevated position roughly 250 yards down the fairway, mounted on a vehicle and carefully camouflaged with foliage so not to be visible to the cameras at the tee shooting toward

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IN THOSE countries where a Sander or Bull Roarer ball carrier was indispensable, it was used to photograph aerial shots of the local golf course on which the Shelly Q&A competition was staged. Here Tugot, accompanied by Bob Oley, prepares to take off over the Pebble Beach course.



'THE VIRGINIAN'... NINETY MINUTES IN COLOR

Because it is aimed for both television and foreign theatre release, Revue's new 90-minute TV series presents special considerations in the photography.

By JAMES CARTER

BECAUSE "THE VIRGINIAN" was to be Revue Studios' "showcase" TV film production for 1963, the series was planned as a full hour-and-a-half show in color. It is the first 90-minute TV film series to be photographed with the new Eastman Color Negative Film, Type 5251.

This series is unique in the annals of Hollywood film production in that each segment is designed to serve two markets: as a theatrical release for foreign movie houses and as a prime-time color feature on the NBC television network.

For Lionel Lindon, ASC, who directed the photography of the initial show in the series, and has photographed others since, this duality of purpose posed a number of problems. The most challenging was achieving an acceptable balance between conventional theatrical film and TV film lighting. For example, what might appear as deep shadows on a theatre screen might very likely go completely black on television screens. Moreover, some limitation was placed on the use of dramatic closeups of faces under strong side lighting—so often used in feature film photography. When shots of this type are filmed for television, they require skillful lighting and a carefully considered camera angle in order that detail not be lost on the dark side of faces.

Despite such limitations, however, Lionel Lindon found plenty of latitude for creative improvising in photographing scenes for "The Virginian." One example in particular stands out: he created a striking

Continued on Next Page

LIONEL "CURLEY" LINDON, ASC (in light-colored, rounded, overalls) now camera-attach for a scene for "The Virginian," Revue Studios' new 90-minute color TV film series. With him are associate Bob Borker (top) and assistant cameraman Walter Russell. Lindon was awarded an "Oscar" in 1954 for photography of "Around the World in 80 Days."





SHOOTING: A typical exterior for "The Virginian" on Revue Studios' back lot. The drenched camera is set low on platform over the water, while sound technician keeps the microphones, suspended on "bobs" from, properly positioned above actor in scene. The "bug" acts as microphone for the camera, and it will be noted that there's a blur induced on the "bug" by the light (left fig.).

sunrise effect—seen through a window on a set—without employing any extra lights or filters. The effect was accomplished by directing red light on the rear of the set from dimmed spotlights, then slowly bringing up the yellow-filtered lights illuminating the front of the set.

Maintaining theatrical quality while working within the schedules necessary for production of a television series also proved a challenge. The usual time budgeted for shooting a 90-minute television Show at Revue is nine days. Such a schedule required Linden and his crew to complete around 45 set-ups daily—approximately five pages of script.

"Management at Revue places emphasis on creative and imaginative photography for all its television productions," said Linden, as we discussed the filming of the series. "However, we make a special effort with 'The Virginian.' It is one of our prestige productions—our showcase."

The stories in this series are laid in the 1890's, in the town of Medicine Bow, Wyoming, and more specifically on a nearby ranch called Shiloh. The plots revolve about the foreman of the ranch, known only as "The Virginian," and the changing West near the turn of the century. The American cowboy's responses to the changing times supply the vital story material.

The Virginian, himself, embodies all the qualities of the western cowboy. Supporting him are two other leading men, Steve and Trampas—working cowboys on the ranch. Other major characters are Judge Henry Garth, owner of the ranch, and Molly Wood who runs the town newspaper and is the object of the three young men's romantic attentions.

The basic theme of the series requires both of door and location photography. Revue Studios prefers not to work outdoors with color film in the early morning or late afternoon, except where it is desired to utilize the quality of light existing at those times for some special pictorial effect.

Color film's peculiar sensitivity to the color of light is reflected in higher production costs as compared with black-and-white production, according to Linden. Larger crews and more lighting equipment are generally required when shooting in color, he points out, and very often a production company must shift locations more frequently due to sudden changes in the weather.

In spite of the extra cost, Revue Studios' management believes color TV film production is well worthwhile. Color shows are being aired in prime viewing times on two television networks. Furthermore, it is held that the residual value of a color series for future re-runs in this country or overseas more than offsets any increase in production costs.

Currently, prints of "The Virginian" and "Laramie" (another Revue video series) are produced in 35mm color for release in the three major U.S. television markets: New York, Chicago, and Los Angeles. For the others, release prints are made on 16mm black-and-white film.

Regarding the new Eastman Color Negative Film, Type 5251, Linden believes that the improved color negative provides much truer color reproduction in television transmission. Through carefully controlled lighting, the brightness range is well compressed so there are no extremes in highlight or shadow densities. "On the television screen," said Linden, "blurs are more natural and flesh tones generally are less yellow—more realistic."

"There also appears to be better definition of the picture on the TV screen. The improvement, over the old color negative, is apparent because the finer grain structure of the Type 5251 color negative results in a clearer picture," he explained.

This finer grain structure also provides better optical effects for the series. Opticals improved noticeably with the introduction of the better quality, finer-grained material, Linden said. With improved film stock for the first two generations, he anticipates even further improvement in optical effects after the new Eastman Color Print Film, Type 5385, becomes available within the next few months.

Because the new Eastman color negative recorded such an accurate picture on quality control test strips, black-and-white prints are now used for dailies, instead of color, then edited as work prints on the following day.

Most aspects of Revue's TV film production, however, have not been drastically changed where shows are shot in color. For example, the new color negative has not changed the techniques for de-

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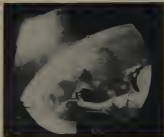
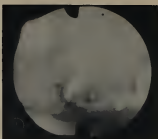
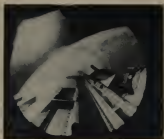
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MISSILE BOOSTER separation is recorded by Milhiken high-speed motion cameras. Frame reproductions from film show (1) camera now looking down side of Atlas 2F missile 50 miles up. Camera is at 2nd stage, noted at booster. Earth in background, seen at top, left. (2) Separation produces sudden onset of fuel reddish flow booster. (3) Second-stage

boosters now visible. Booster 3, dark shape just above it. (4) Right booster has turned sideways toward the camera, appearing as into dark ring, center of picture. Photo, lower left, is Atlas missile looking off at Cape Canaveral, Florida, for successful test flight.



Space Cameras Ride A Missile

After recording booster separation, cameras were released back to earth in Cook recoverable capsules.

By ARTHUR ROWAN

WHEN MISSILE BLASTOFFS are written into the feature movie scripts of the future, special effects technicians will encounter new and challenging problems in reproducing and staging such events. If you already have such a project on your schedule, then the

photos above may interest you. They depict a nose-cone's eye-view of the actual separation of an Atlas missile booster in flight as recorded by Milhiken 16mm high-speed cameras. The performance demonstrates once more the ability of today's high-precision motion

picture cameras to record unusual action in unusual situations and render film images of excellent quality.

The recent flight of four space cameras aboard an Atlas 7F missile launched from Cape Canaveral, Florida, marked the first successful on-board motion picture filming of booster separation. The cameras are the product of D. B. Milliken Company, Arcadia, California.

The purpose of the resultant film was to provide exact graphic detail of what happens as an Atlas lifts off and goes through its sequence of programmed maneuvers before engine cut-off. Two Milliken DBM-4 cameras photographed launch details and were subsequently ejected at 300 feet. Two DBM-3 cameras remained aboard to record first-stage booster separation before they, too, were released back to earth in Cook recoverable capsules 500 miles downrange.

The photos 1 to 4 are frame-blowsups from the original films. In photo (1), the camera looks down the side of an Atlas 7F missile fifty miles up and away from Cape Canaveral. Camera is in second stage, aimed at booster. The earth is seen in the background, with the sun at the top. The diagonal row of small white dots emanating from the center is reflection

Continued on Page 113

MILLIKEN DBM-3 camera, from which were employed recently in photographing Air Force booster separation of Atlas 7F missile, then released in earth in recoverable capsule. Two DBM-4 cameras were also used in the filming project, one similar in design but not equipped with the wide-angle lens shown here.



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AERIAL DOLLY—Lt. Gary Keel and S. Sgt. Ellen K. Fennell make good use of Air Force helicopter to photograph western missile sites in the U.S. for the Department of Defense.

THE AIR FORCE'S 'FIRE BRIGADE' CAMERAMEN

Ever ready to move into action on a moment's notice, in case of war or other emergency, they also undertake routine peacetime production assignments and shoot more than half a million feet of 35mm negative a year.

By HERB A. LIGHTMAN

"THIS IS A COMBAT TRAINED, battle-ready crew of skilled cameramen who, in case of war or national emergency, could move into action on a moment's notice. You might say we're the reserve manpower 'Fire Brigade' or 'Go' element of the Air Photographic and Charting Service."

With this statement Capt. Robert H. Jung, commanding officer of Detachment 2 of the 1352nd Photographic Group (headquartered at Colorado Springs, Colorado), sums up the function of his team of rough-and-ready Air Force cameramen. Described in more detail, that function may include filming in the Communist-treasured jungles of Viet-Nam, in a vast tunnel hundreds of feet underground, inside a nuclear reactor, in supersonic aircraft or in the depths of missile silos where explosive destruction is a constant hazard.

Of the 70 men, all military, who comprise the detachment, 28 are motion picture cameramen, 19 are still photographers and the remainder are sound technicians, camera repairmen and supply personnel. Working in small camera crews they operate within the continental United States from Salt Lake City, Utah, east to Little Rock, Arkansas, and North and South from the Canadian to the

AIR FORCE cameraman Billy R. Cooksey receives assistance with his Ardis camera as he prepares to shoot aerial footage from back seat of a T-33 jet.



Mexican borders—servicing, photographically, the largest land mass of any APCS organization. In the course of a year's operation they shoot more than 500,000 feet of 35mm Eastman Color Negative, 50,000 feet of 16mm film, 24,000 black-and-white still pictures, 3500 4x5 color transparencies and 6000 35mm color slides.

Detachment 2 was originally set up over four years ago to service the North American Air Defense headquarters (NORAD), the Air Defense Command (ADC), and the Air Force Academy, all located in and around the strategic nerve center of Colorado Springs. In the ensuing period progress in the development of Intercontinental Ballistics Missiles has forged ahead in the point where 60% of the unit's photographic output is dedicated to the documentation of activities at several hundred missile sites located in the mid-continent area. The balance of its operation is devoted to combat coverage of such hot-spots as Vietnam, field assignments from the Lookout Mountain Air Force Station in Hollywood, filming of Air Force Academy projects and special assignments from ADC and NORAD.

The latter category includes a wide range of challenging commit-

ments including complete photo documentation of the construction of the NORAD tunnel. NORAD is a two-nation organization—including elements of the United States Army, Navy and Air Force as well as the Royal Canadian Air Force—set up under a single commander for instant defense of the North American continent against possible enemy attack. Because of its tremendous strategic importance the decision was made to establish an impenetrable headquarters inside vast underground chambers tunneled deep within a 10,000 foot mountain of solid granite.

In filming the step-by-step progress of this monumental drilling operation APCS cameramen had to cope with volatile gases and gushing underground streams liberated by the blasting of the rock. But the main problem was getting enough illumination to expose color film within the vast cavern. The coal-black rock walls of the tunnel soaked up light like a sponge, requiring use of an enormous amount of illumination for acceptable photography. Generators were brought in to operate as many Sennars and Sky-pans as possible, enabling the photographers to get excellent close shots of the action. The long shots, how-

ever, remained unconquered until a flash of Yankee ingenuity provided the solution. An ordinary barbecue-spit motor was modified by turning the drive-shaft and slotting it to fit the motor mount of a Bell & Howell Eyemo camera. This motor, turning the camera movement at the rate of 2 frames per second, made possible sufficient exposure of the under-lighted long shots to achieve a full-bodied negative.

Similar lighting problems prevail while shooting deep inside missile sites. Here space is extremely limited and there is so little room to put lights that good photographic results are often difficult to attain. To obtain the maximum pictorial coverage within the sites, extreme wide-angle lenses are used on Arriflex cameras. Use of ordinary exposed lamps, open spider boxes and three-wire cabling setups is prohibited because of the constant danger of a vagrant spark setting off explosions of liquid oxygen and other flammable gases present in the sites. For this reason, sealed-beam lamps mounted in Frezno units provide safe lighting. The cameramen, who must clamber down narrow steel ladders with cameras strapped on their backs, often wear gas masks

Continued on Next Page

FLMING 701 illumination progress in a future underground base of the NORAD combat operations center. Lights used were Sennars and Skypanes fed by diesel power generator.

USING TWO Aviflex cameras, Air Force cinematographers photograph parade formation at the Air Force Academy in Colorado Springs. Spotlight reflectors in bands of steelshells provide security as light.



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'FIRE BRIGADE' CAMERAMEN

Continued from Preceding Page

or pressurized moon-walks and also carry a reserve supply of oxygen as a precaution against the deadly gases that sometimes settle at the bottom of a silo.

A typical film documentation of a missile site starts with photographing the removal of the first shovel-load of dirt, then shows bulldozers scooping out the foundation, the pouring of the concrete, methods of transporting and installing missiles in the launch area, etc. From the moment of ground-breaking until the missile is fired the cameraman filming the operation must understand everything that is being done so that he can emphasize important details and write accurate captions for his footage. As a result of this requirement the cameramen involved probably have more complete knowledge of the overall missile program than any other group of personnel in the Air Force. They must know the identifying characteristics of every type of missile in the inventory, its hardware, fueling procedure, etc.

Because missile sites are constructed in some wildly remote areas, first aid and make-up kits have become standard equipment in all camera cars. At one site near Tucson, for example, more than forty rattlesnakes were killed in one day. A cameraman filming a site near Denver finished shooting, stowed his equipment in the back of his station wagon, got into the driver's seat, started the engine and shifted into gear. As he looked down, a rattlesnake which had been coiled in the other seat sprang into his lap. The cameraman leaped out the door. The car, idling in low gear, continued down the road another twenty-five feet before coming over the embankment. This incident threatened to ruin the detachment's perfect safety record of 1,000,000 driver-miles without an accident. But since the rattlesnake was in full possession of the vehicle at the time, the statement can still be truthfully made that the unit has never had an accident while one of its men was in the car.

When Capt. Jang was in Viet-Nam recently directing the operations of several of his camera crews, two cameramen were forced down in a strategic village completely surrounded by Communist troops. Caught in a crossfire of hostile 50-mm machine guns, the photographers stood with cameras in

one hand and gun in the other, undecided which to shoot first. On several other occasions cameramen shooting from helicopters hovering at low-level above a hot combat area have gone on shooting as bullets whistled right through the plane past their heads and the pilots kept up a running gun duel with hostile troops on the ground below.

The harassment to cameramen filming in Viet-Nam exists also in the climatic and terrain conditions under which they are called upon to shoot. The climate there is hot and humid and causes film emulsion to swell and become tacky so that it is difficult to load and tends to jam in the cameras. Also, because of some peculiarity of the active rays in that area, scenes exposed according to meter readings are invariably overexposed. A major hardship was caused by the fact that there was no source of electrical current where Arnikes batteries could be plugged in for recharging. One cameraman modified a 30-volt Frezno-light battery so that it would deliver just 15 volts of current for running the camera. In another case a 25-volt battery from a Hawker Hunter British aircraft was pressed into service. Weighing 50 to 60 pounds, it had to be hauled by the cameraman through the underbrush along with his camera equipment so that filming could proceed.

Hazards equally as threatening as those of combat are encountered by Detachment 2 camera crews assigned to film operations of the Air Force's nuclear energy plant at Sandover, Wyoming. This installation, the first of its type owned by the Air Force, provides all of the power needed to run a complex radar station plus the electricity for homes in the area. Cameramen filming the highly radioactive elements of this installation are volunteers especially trained for this hazardous duty and expert to take certain calculated risks.

In one case, for example, scenes were needed showing the installation of three nuclear cores projecting down into a water tank. Lights were carefully lowered down to water level and the cameramen, clinging to a steel ladder with one hand and holding the camera with the other, shot the required scenes. Had he dropped the camera, a light or himself into the water the consequences would have been most serious.

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NEW

The projector is a converted front shutter Simplex with a two gun intermittent. 16mm or 35/32 film runs at a speed of 144 ft. per minute while 35mm film runs at a speed of 165 ft. per minute.

1. A wedge controls the light intensity.
2. A 500 watt lamp is used for 16mm and a 1,000 watt for 35mm (a blower is used to cool the lamphouse).
3. A 2 1/2 inch projection lens is furnished with each unit.
4. A start-stop lever controls the power to the lamp and motor.
5. The magazine and take up core takes up to 3,000 ft. of film.
6. Upper guide rollers are made to handle the film from either direction of the feed reel.
7. A free wheeling take off flange is provided in the magazine.
8. A lamp near the takeup reel permits hand inspection of the film prior to takeup.

NOUVEAU

Le projecteur contient un obturateur Simplex anterior transformé avec deux vitesses intermittentes. Les films de 16mm ou 35/32 tournent avec une vitesse de 144 pieds à la minute, tandis que les films de 35mm tournent avec une vitesse de 165 pieds à la minute.

1. Le régulateur de voltage d'intensité d'éclairage.
2. La lampe de 500 watt est nécessaire pour les films de 16mm, et de 1000 watt, pour les films de 35mm (un ventilateur est mis pour rafraichir la chambre de la lampe).
3. L'objectif de 2 1/2" est installé.
4. La cassette de mise en marche et d'arrêt contrôle en même temps la lampe et le moteur.
5. La bobine de films avec noyau peut contenir 3000 pieds de films.
6. La roue supérieure est construite de manière de recevoir le film dans les deux directions, aisément par la bobine centrale.
7. Une roue est installée pour libérer rapidement le film de la bobine.
8. La lampe se trouve près de la bobine recepteuse, et donne toute facilité pour inspecter le film à main dans le projecteur.



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NUOVO

Questo proiettore è un Simplex trasformato, obturatore al fronte, meccanismo di scatto di due punti. La velocità di proiezione è 16 o 35/32mm e di 144 piedi per minuto, e in 35mm, di 165 piedi per minuto.

1. Controllo manuale della luminosità della lampada.
2. Lampada di 500 watt per 16mm e di 1000 watt per 35mm.
3. Obiettivo di proiezione di 2 1/2".
4. Maniglia per controllo di motore a lampada di proiezione.
5. La cassetta porta pellicole può contenere 3000 piedi.
6. I rulli superiori di guida sono costruiti per operare con film proveniente da anelli delle bobine avvolgitrici.
7. Disco con manovella sporgente nel magazzino.
8. Una lampadina diurna la bobina avvolgitrice, permettendo l'ispezione manuale del film prima che si avvolga nel proiettore.

NUEVO

Esta máquina es un projector simplex convertido, obturador al frente y movimiento exteriormente a doble grta. Para 16mm o 35/32mm, la velocidad fija de proyección es de 144 pies por minuto, para 35mm es de 165 pies por minuto.

1. Un reostato controla la intensidad de la lámpara de proyección.
2. Para 16mm se usa una lámpara de 500 watt, y una de 1000 watt para 35mm (se chorro de aire refresca las lámparas en ambos casos).
3. Cada unidad está provista de un lente de proyección de 2 pulgadas y media.
4. Una palanca de control opera el motor y la lámpara simultáneamente.
5. Capacidad de proyección: rollos de hasta 3000'.
6. Los rodillos de guía superiores operan con la película en ambas direcciones.
7. La tapa de la bobina de carga es desenroscable.
8. Una lámpara ubicada junto a la bobina de toma permite la inspección manual de la película antes que se rebobine en la bobina superior del proyector.

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Hazards, however, are all in the day's work for the APCS cameraman. Sometime ago when a forward radar station mounted on a "Texas Tower" in the open sea off the coast of New England started to break up under the force of a hurricane, cameramen from Detachment 2 were rushed to the site in the teeth of the gale to photograph evasuation of the tower personnel.

The present headquarters installation of Detachment 2 at Colorado Springs provides all the latest equipment for the photography of motion pictures—last no facilities for processing, precise editing or sound dubbing—these operations being handled at Lookout Mountain, in Hollywood. Arriflex cameras are standard for field operations, while Mitchellis are used for studio work. The present studio building has a sound stage 50 x 45 feet in area with a 14-foot ceiling. The walls are sound treated with acoustical tile and the floor has been soundproofed with plywood laid over a rubber base.

The studio is equipped with a full range of Mole-Richardson lights—including Softers, Junior, Baby Spot and Sky-panes, also Calotran units for location lighting. The studio lights are mounted on aluminum frames supported by upright tubular aluminum "Pulcar" poles, which can be quickly moved to any area of the studio and set up as easily as any standard pole light support. A Hydroly for mobile camera shots and Teleprompter complete the studio's production equipment.

Available on the stage is 290 amps of 220-volt current split so that 110 amps may be drawn from each of two remote boxes. There is also a three-phase, 220-volt line with four outlets permitting the operation of as many as four cameras at a time.

Sound is controlled on the stage by means of two mixing consoles which afford use of up to six channels and instantly. Film sound is piped from the stage to the recording room, located in another part of the building, where it is recorded on 16mm sprocketed magnetic tape by means of Mag-matic equipment.

A piece of equipment which has been found to be invaluable for recording synchronous sound under difficult location conditions is the Vega combination wireless microphone and transmitter. The basic unit is a metal enclosure roughly six inches long and one inch in diameter, housing a microphone in its top section and a transmitter

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level transmitter below. The entire unit can be concealed under a necktie or blouse. The signal is transmitted by two cable-type antennas looped around the body of the actor or narrator, inside their clothing. The signal is picked up by a receiver plugged into a power source up to 100 yards from the microphone. The receiver amplifies the signal and feeds it into the high-impedance channel of the mixer. This equipment is especially valuable and is widely used by APCS camera crews when shooting *sync sound* on a flight line or parade ground where the narrator must be free to move around.

Like the commanders of most APCS units, Capt. Jung is intensely proud of his camera crews and believes them to be the best in the Air Force. A former combat cameraman of the First Motion Picture Unit at Red Beach studios during World War II, he had a spell of civilian activity as a marine cameraman and specialized in underwater photography at Catalina Island. He entered government service in 1950, he was assigned to film the Eniwetok atomic bomb tests along with ASC members Gil Warrington and Harry Perry. A member of IATSE Local 665, he took time off while stationed in Hawaii to work on such pictures as

"Hawaiian Adventure," "The Beside of Marie Stover," and "The Sea Chase." On the latter he renewed acquaintances with another former combat cameraman, Lt. Col. William Clotier, now a Hollywood cinematographer. Recently they met again in Tucson where Clotier was photographing the John Wayne film, "McGurk" and Jung was shooting a Titan II missile installation. In 1958 he took the first combat motion picture group onto the offshore islands of Guam and Mota while these islands were under Red Chinese fire. He was awarded the "Order of the Flying Horse" from the Chinese Nationalist government for his photographic activities in this campaign.

Capt. Jung's right hand man is Detachment 2 of the 135th Photo Group is Lt. Gary Nugent who joined APCS after his graduation from Michigan State University under the ROTC program. A camera major with considerable civilian experience in motion picture and television production, he is typical of the imaginative, highly trained technicians sought by APCS as career officers. Under Air Force auspices he will shortly begin work on his Master's degree in Cinema at the University of Southern California. ■

THE PROS SHOW THE STUDENTS HOW

Continued from Page 92

simplest forms. Then, as he pointed out, the human drama becomes more important.

Michael Neyman, who is spokesman for the students and was camera operator on the picture, said that Zane-mann really made the students hustle.

"The moment a shot was finished," Neyman said, "I had to hand the viewfinder to the director and follow after him. As he and the cameraman discussed the next shot I had to anticipate the approximate camera position and know that he wanted and have the assistant set everything up. We had to be ready when the director was. This sort of thing is not taught in schools."

One of the problems encountered in plotting the early part of the story was how to get the salesman out and away from his car, thus simplifying the action of the hectic shooting a pistol at him. The simplest expedient, it seemed, was to have a tire suddenly go flat. To get around the problem of staging and photographing an actual start

tire blowout, the effect of the blowout was photographed from inside the salesman's car; the car suddenly swerves (as the blowout is heard on the sound track) and Widmark is seen fighting the wheel and applying the brakes in order to keep the car under control. The next shot shows the car barreling down the highway as a prefabricated man, then coming to a stop with the blown tire and wheel filling the screen.

As Widmark starts to change the tire, the wheel slips from his grasp and rolls down an embankment. As he sets out to retrieve it the dramatic character, gun in hand, suddenly appears out of nowhere and begins shooting at Widmark, who takes refuge behind the prop boulder. Thus, the story gets off to an action-packed start.

From here the story moves on to show salesman Widmark, pictured as a weak character, cowering behind the boulder and hoping for someone to come to his aid. Suddenly, and to his horror, he sees two children walking



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into the danger area. Watson tries too long and the two children

Stunned by the killing, steps away from his own. Upon the hostile orders, imaginary army of men. Wainwright complies and his ho assistant does not show orders up imaginary solid here and then wanders into the desert. All dialogue scenes was recorded on synchronized sound.

"After three days of shooting in Bloomington, Calif., Neyman practically lived at the company cutting rooms at the studios while our film was being edited.

When the picture was finished, Zinnerman had this to say: "I find it stimulating to work with young people who have a fresh outlook on life and are boundlessly excited, professional and who want to work. I enjoy the spontaneity with which they absorb advice and information from me."

"To my mind they are the life-blood of our industry, and that we will die if we do not if doors are not thrown open to these youngsters and if we do not nurture and encourage them."

"We need them more than ever, I'm certain. They are one of two Duncan Photochemicals among all these studios from all over the U.S. and all our staff will have the Rapid trademark."

Neyman, one of the students in the group, points out that he is working at the Capitol and being able to talk to the students, we began to get into the problems of the industry.

"Because the volume of production has been greatly increased, new recruits will be few and far between and for a long while jobs will be mainly in the industrial and documentary field rather than in the theatrical. Studios often use a radio operation than theatrical equipment by which they do not always have the same opportunity as the universities to give some chance to work on production equipment, so

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SPACE CAMERAS

Continued from Page 100

of sun on quartz glass window.

Photo (2) shows the moment of separation of booster, which produces a sudden cloud of fuel residue. The white area in lower central portion of photo is reflection of sun on booster.

In photo (3), a second-stage nozzle is now visible as also is the combustion ring, which permits film analysis of fuel ignition. In this photo, the booster is dark shape just above nozzle.

In the last photo, (4), the empty booster has turned edgewise toward the camera and appears as a tiny dark ring in the center of the picture.

Until now, the exact details provided by the films recorded with these cameras had been impossible to obtain through the usual booster-staging study methods of telemetry and long-range telescope tracking.

The Milliken cameras used were high-speed 16mm motion picture units capable of speeds up to 400 frames per second. The cameras can be equipped with a Sun Gun strobe light that provides 3200 foot-candles of photographic illumination. Lenses of the throat-section cameras provide a 55° field of view of the target area, while the exterior staging camera can cover a field of 160 degrees. The staging cameras strike the landing areas at a speed of about 70 miles per hour.

'THE VIRGINIAN'

Continued from Page 100

terminating exposure, it is pointed out. In this respect, the film is treated exactly the same as the earlier color negative.

Directly responsible for the control of color quality in both the photography and release printing of "The Virginian" shows is Bessie's camera department head, William Wade. Working closely with both Director of Photography Lincolnton and the labors, his aim is to get the precise quality desirable for both theatre and television—the two mediums for which "The Virginian" is produced.

"The Virginian" is the first 90-minute TV film show to be photographed in color," says Wade. "If it starts a trend, it will be due to the photography," he concluded.

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'MUTINY ON THE BOUNTY'

Continued from Page 51

highly-coated "peaceful" South Pacific were anything but calm and the ship pitched and rolled continuously. There was constant wind and paralyzing storms, one of which flooded the island, washing out roads and making crew members so they could not go to the shooting area for several days. After three weeks of "impossible" shooting weather, the company returned to photograph, ironically enough, storm sequences on the sound stage.

The storm, a dramatic sequence in the film, presented its own array of photographic problems. It supposedly raged over several days and nights calling for a variety of lighting schemes and camera approaches. A full-scale model of the "Bounty," complete with sails, was set up on rockers inside one of the largest M-G-M sound stages against a huge gray cyclorama. Goggles, barometers were installed to send tons of water crashing down on the ship's deck, to simulate the effect of warmer seas—washing sailors overboard and, incidentally, injuring several stunt men in the process. Giant wind machines blew solid sheets of water along the deck to enhance the storm effects.

To simulate the luminous overcast of the approaching storm, Sutters began the photography of this sequence with an overall soft light, then darkened the scene as the storm developed. Then, as the storm hit and water began to crash down on the deck, he dropped the light level on the backdrop, letting the "sky" go from gray and increased the contrast of the light for a harsh dramatic effect. Night sequences and a driving snow storm were shot next. Through it all Sutters was faced with the problems of not being able to get back far enough with the camera to get a good long shot of the ship and also in lighting the scenes so they would cut easily in the editing with actual location shots filmed at sea.

Actually, the sailing model of the "Bounty" which journeyed to Tahiti was one of four full-scale replicas built for the picture. Another was built on a stage for the storm sequence. A third, with full deck gear and sails, was built as the M-G-M backdrop as part of the huge exterior set duplicating the wharves of Portsmouth, England prior to the departure of the historic vessel. The fourth full-scale markup was a cutaway model of the below-decks in-

teriors of the ship, built on rockers so that the roll of the sea could be simulated. One of the problems of shooting the interiors arose from the fact that the Ultra-Paravision anamorphic lens used to shoot the sequences covered an angle of 158 degrees. Photographed with such an extreme wide-angle lens, ship cabins of normal dimensions would have appeared vast on the screen. Therefore, the sets actually had to be cut down and fast-boarded to make them look authentically small. To further the illusion of cramped space the ceilings were set so low that the actors had to stoop to walk around. Now the one major remaining problem was where to put the lights, camera and hordes of people called for in some of the scenes.

Because the real ship when at sea rocked noticeably, this movement had to be matched in scenes where characters are shown below decks in the cabin. Usually such an effect is produced by building the interior markup in such a way that it will accommodate a camera trip. Then the ship, placed on rockers, is made to swing independently of the camera. In this case, however, the spread of the wide-angle lens required that the side walls of the cabin remain in place, which meant that there was no room for a camera crane. To solve this dilemma a camera platform was suspended by chains from the girders at the top of the stage so the camera could be suspended freely down through the lights affixed to the set. This worked well enough, except that each new set-up meant re-hanging the camera platform—a slow and painstaking process.

Because the ship's cabins were so small, the rocking of the boat made the camera appear to be moving from one wall to the other. With the wide angle lens exaggerating the movement, Sutters realized that there was danger of audiences watching the blood re-sell on a large theatre screen becoming sick! Over the protests of observers, the movement of the rocking mechanism was reduced and more precisely controlled to match the camera angle used for each individual shot. For example, in the long shots a rather extreme degree of movement could be used. In the matching closeups, however, the movement had to be reduced considerably.

While the company was constantly fighting overcast skies in shooting sequences which called for fine weather, there was one scene in which this prob-

lena was directly reversed. According to history, the "Beauty" sailed from England on December, 1787, during a spell of raw, overcast weather. On the very days set aside for shooting this sequence on the bank lot unusually hot and sunshine prevailed. Success met the problem by flattening and dulling down the entire scene through lighting, to capture the true mood of the sequence. The company shot early in the morning and late in the afternoon. The ground was wet down to dull it and shooting through neutral density filters effectively softened the sun-lightened colors.

Lighting the sequences shot on the decks of the actual ship at sea was a constant struggle because the huge sails invariably blocked off the sunlight. Here the action was first rehearsed with the sails furled in order to better control the ship. When it was time for a take the sails would be unfurled, completely cutting off the sunlight. Turning the ship toward the sun for better light usually meant that the wind would be blowing from the wrong direction and the sails would not billow out as they were supposed to.

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power provided by the sails. It had been planned to use these two motors also to drive power generators to feed the booster lights, but in actual practice it developed that one motor was needed constantly to aid in steering the ship, and Surtees was thus restricted to using three Buco cameras at most.

The climactic sequence of the picture, in which the crew sets fire to the ship, was filmed on the sound stage with a crew of fire fighters standing by ready to spray foam and water should the flame get out of control. The best was so arduous that the technicians had to wear insulated suits and asbestos was placed around the camera.

The sequence was tricky to photograph because the color film used is balanced for incandescent light and since firelight is much in color temperature (approximately 3200° Kelvin) there was the probability that the fire would appear white if normally exposed. In order to retain the red tones of the flames, Surtees purposely underexposed the fire scenes, lighting for a key of 1/20 and stopping down to f/4.5. Also he lit the scenes very contrasty, using no fill light at all on the faces, since light from the flames tended to fill in the shadowy areas.

After making photographic tests in Tahiti Surtees noted that for some unexplainable reason, scenes photographed according to exposure meter readings invariably turned out to be underexposed one stop. Compensating as carefully he exposed versus one stop over the meter reading, in effect using the ASA 32 color film as if it were rated at ASA 16. With this adjustment in exposure he said, the exterior scenes printed reasonably in the middle of the scale.

Further photographic complications were presented by the fact that fully forty per cent of the exterior scenes had to be filmed at sunset. Under such conditions there is a span of only a few minutes in which the light is right for shooting, and when it is also impossible to get an accurate meter reading. Moreover, since there was again the danger of washing out the red tones, such scenes had to be slightly underexposed. Surtees added to the effect of the natural light by having red and gold filters placed before the booster lights used in filming the sunset scenes. Even so, still more red tones had to be added to these scenes by the laboratory in printing. In shooting day-for-night exteriors, a Polar screen was effectively used to darken sky and water without

Cinematographer Harold E. Wellman is credited with additional photography for "Mutiny on the Bounty" and A. Arnold Gillespie, Lee Blane and Robert R. Hoag for its superb special effects. As George J. Mitchell remarked, in reviewing the picture for *Film in Review* for December 1962, "This film proves that the problem in photographing miniatures for wide-screen projection have been mastered. The scenes of the Bounty attempting to round Cape Horn in a gale are among the best of the kind I have ever seen."
—Ed.

affecting flesh tones

Several scenes in the sequence showing the "Bounty" arriving at Tahiti, as well as in the boat fishing sequence, were filmed with hand held Panavision cameras operated by cameramen riding in outrigger canoes. These cameras were particularly valuable in getting mobile coverage of the unique fishing ceremony, during which 1,000 natives form a human chain in the surf while others in canoes beat the water with stones to drive the fish up onto the beach for the kill. Panavision's underwater camera was put to effective use in this sequence as well as in the boat-hauling sequence—the latter actually filmed beneath the ship while at sea.

Despite the almost incredible photographic problems encountered, "Mutiny on the Bounty" sweeps across the screen as a spectacularly personal adventure—a credit to Cinematographer Robert Surtees, ASC, the Panavision cameramen, and the operators who worked behind these cameras.

**"WONDERFUL WORLD
OF GOLF"**

Continued From Page 48

it. Chief purpose of the No. 4 camera was to pick up the ball in flight from the tee and follow it down to its ultimate lie on the fairway or green. Here, weather conditions played an important part in the success of these shots, for if the sky was a murky or hazy one, the ball was lost against it. But where the ball was backstopped in its flight by clear blue sky or green trees, it was easy for the camera operator to follow it.

To stabilize the No. 4 camera, we used one of two types of carriers—

depending on their availability in the various countries visited. One was the Jeep or the Land Rover, on which a platform for the camera was erected, the other a truck having a collapsible, hydraulically operated crane and commonly known as a "cherry picker." These are shown in the accompanying photos, but are not immediately recognizable because of the camouflage given them, as mentioned earlier.

Following the tie-off, on par 4 and 5 holes, cameras 1, 2, and 3 were hoisted aboard transports provided for the purpose—ranging from golf carts to small motorized trucks—and moved forward and set up in positions for shooting the next play. The No. 3 camera continued to photograph reaction shots. Camera No. 1 was positioned behind the player, and No. 2 in front of him, at a three-quarter angle.

On a par 4 hole, the players usually got on the green with their second shot. In the meantime, the mobile-mounted camera No. 4 moved into a new position in back of the green. Camera No. 5 was up high on a camouflaged cherry picker, also back of the green. On the par 4 holes, cameras 4 and 5 aimed to pick up the ball on the players' second shots and follow it as it came to lie on the green. Once the two balls were on the green, Dick Darley and I usually huddled and decided on the best camera angles—high or low—to cover the next shots of the players. To make the cup positions on the green readily visible to the camera operators and ultimately to TV audiences view up the shores, the day before playing began on each course we had the ironers of all cups painted white. Thus did all cameras cover the playing action as it progressed, then move quickly forward to the next tee and repeat the procedure.

It should be explained here that on the day preceding the shooting of a match, my camera crew and I accompanied by Darley would scout the entire course and stake out tentative camera positions on the assumption that the playing would be normal and that neither player would get into any trouble off the fairways. When this did occur, during the course of a game, it required some quick thinking and even quicker hustling to get the cameras into position to cover the ensuing plays with a minimum of delay.

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could with little difficulty average 15 minutes of shooting time to a hole. That's from tee-off to the final putt on the green.

The commercials for this TV series, institutional in format, were a separate project and were photographed with sync sound on the same locations as the tournaments by Director of Photography Eric Cross, B.S.C., and directed by Kenny Williams.

Equipment Performed Well

Except for the high-speed camera we encountered very little difficulty with cameras and equipment during the five months we photographed the eleven tournaments. Our difficulty with the high-speed camera was in operating it at maximum speed—154 frames per second—which induced lateral movement in the film as it traveled past the gate. We reduced the speed to 120 frames per second—five times normal—which provided much better results in our slow motion studies of the interesting techniques of the various players.

Sequences of speed shots were filmed at the conclusion of each match to demonstrate, in slow speed analytical action, each player's driving, pitching and putting form. This is a highlight of the series which has met with instant favor with TV audiences. For trouble-free shooting of such action at high camera speeds, I feel best results would be obtained with one of the cameras specifically designed for high-speed cinematography—such as one I used in shooting the original atomic bomb tests in the South Pacific several years ago.

The two 35mm Arriflex cameras were always operated tripod-mounted except when required for some unusual low-angle shot (such as shown in the cover photo of this issue). Actually, these cameras are a little too heavy for any long, sustained shooting hand held. When a camera operator tires from long periods of shooting with an unattended camera, amateur shots of varying result.

Our Arriflex served as the No. 3 camera, shooting spectator reaction, and the other was used exclusively in connection with magnetic tape recording of the running commentary during the takes. Equipped with an Arriflex sync generator working in conjunction with a master Perfection tape recorder, this camera was responsible for photographing and recording the comments

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MATCH SCHEDULE		
DATE	LOCATION	TELECAST
APRIL 10	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 11	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 12	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 13	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 14	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 15	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 16	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 17	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 18	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 19	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 20	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 21	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 22	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 23	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 24	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 25	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 26	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 27	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 28	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 29	Cherry Hill (Cherry Hill)	10:30 PM
APRIL 30	Cherry Hill (Cherry Hill)	10:30 PM

of official narrator George Rogers and Gene Sumner, star of the show, commenting on the various plays as the competition progressed from tee to green throughout each 18-hole play.

An interesting highlight of this whole undertaking was the effective use of camouflage to conceal some of the cameras, their carriers and operators during the photographic coverage of the various matches. The sponsor, Shell Oil Company, made a special point of requesting that, if it were at all possible, none of our working cameras be visible in any of the shots ultimately used in the show series. Camera angles, therefore, were carefully chosen so that the camouflaged jeeps, Land Rovers or cherry pickers would blend naturally with the trees, shrubbery or the terrain of the courses. To conceal tripod-mounted cameras not visible mounted, we placed operators strategically in areas of them in such a way as would not interfere with photography yet adequately conceal them. The pattern of camera coverage we used made it necessary for some cameras to face others directly, but so effective was the camouflage work that not a single camera is visible in any of the shots in the eleven shows of the series.

The aerial shots seen in the shows I photographed myself from helicopters. There are not more of them because an acceptable helicopter was not always available for photography in some of the countries we visited. But where a Sikorsky or a Bell Ranger could be had, we took to the air and shot interesting aspects of the tournament golf course, over which footage narration was recorded later. This photography took the place of static diagrams that might otherwise be used for the same but less effective purpose.

Continued on Page 130

Classified Ads

Continued from Preceding Page

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'WONDERFUL WORLD GOLF'

Continued from Page 114

At no time did any of these ships provide camera interns. We therefore had to build our own—a simple arrangement of a two-by-twelve plank extending through the door beyond the ship, with the camera mounted on a hook at the end of the plank. The doors on either side of the heliograph are removable and we usually worked with them off, so that we could shoot from either side. I'm still haunted by the thought of how close I came to tumbling out of one "cruiser while shooting, sans parachute, over Manila."

Uniformity of exposures between the various cameras was achieved by relaying exposure information to the various operators by walkie-talkie units. I would calculate the exposure for each camera, then radio the information to each operator down the airway, hoping of course that he would take my word and set his lens accordingly. In an operation such as this, where the cameras are not only widely separated but shooting at different angles, I could risk no serious errors in lens settings. I had told my assistants that operators in the course of a general briefing before we started the tour: "I'm being paid to make the mistakes, so please let me make them."

QUESTIONS & ANSWERS

Continued from Page 83

shots. Please recommend a source of filters required for this type photography.—R. C. Karp, Salmon, Alaska

A.—Consideration first must be given to the type of night scene desired in day-for-night color photography. Usually this type photography results in a soft, under-exposed bluish effect. In straightforward night-for-night photography, a scene which is illuminated by an artificial light source should be given a warm tone—achieved by placing yellow gelatin over the light source.

In shooting exterior day-for-night scenes in color, however, the obvious source of illumination in the scene is moonlight, and thus general practice seems to settle for a bluish tone in the overall scene. Shooting such scenes without the 85 filter requires 1/4 to 2 1/2 stops under exposure. For a source of special filters we refer you to Harrison & Harrison, 6361 Santa Monica Blvd., Hollywood 18, Calif.

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 (David Semel Prod.) shooting in Tennessee
 with Jean Simmons and Robert
 Preston Alvin Segal, director

BARRY ROBERTS, ASC, "Fare in Arapahoe"
 (Hal Wallis Prod.) with Elton Proffer,
 Linda Anderson and Max Carver
 Mickey Mouse, director

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FRED MARIN, ASC, "Going My Way"

CHARLES LANG, ASC, "Clairde" (Stanley
 Donen Prod.) Technicolor shooting in Paris
 with Cary Grant and Audrey Hepburn
 Stanley Donen, producer-director

RAY KERNAN, ASC, "Laramie"

JACK MACKENZIE, ASC, "Leave It to Bees"
 (photo)

NICK MOSKOWITZ, ASC, "Jack Benny Show"

WALTER STREIB, ASC, "Wide Country"

CLIFFORD STONE, ASC, "The Brass Bottle"
 (Harold Gremlin Prod., Eastman Color)
 with Tony Randall and Burl Ives
 Harry Keller, director

Continued on Next Page

FLASHBACK TO YESTERYEAR



1922—Shooting a scene for "The Merry Go Round" on a back lot exterior at Universal Studios. Behind the Bell & Howell camera at left is William Daniels, now President of The American Society of Cinematographers. This was Daniels' first major picture assignment. Production starred Mary Philbin, at once, and Norman Kerry, in uniform, center. At Kerry's right is Director Erich Von Stroheim. Others in picture are unidentified. Following completion of this production, both Daniels and Stroheim moved to MGM.

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Continued from Preceding Page

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LEONARD LAMON, ASC, "Wall of Noise" with
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RAULY WOODARD, ASC, RAY FERNANDEZ,
ASC, LARRY JENNINGS, "Hawaii Eye"

ROBERT HOFFMAN, MARCEL STINE, ASC,
LARRY JENNINGS, "Ti Susuot Susuot"

ZIV-LINDSEY ARTISTS

MORRIS ARON, "Upcord"



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